Traffic Engineering-Safety Guidance Fort Polk, Louisiana

June 2001

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Study Objectives

- **To evaluate the operation of the new intersection of Chaffee and Exchange Rds and determine if modifications are warranted.**
- **To evaluate existing one-way Georgia and Alabama Aves and determine if they should revert back to a two-way operation.**
- **To review the preliminary post closure plan and determine how MTMCTEA might assist post officials in developing a final plan.**
- **Review the operation of other potential problem areas, as time permits.**

5th ID (M)
Memorial Park

Observations

- **Fort Polk, with some 12,000 soldiers and employees, is a major power projection platform and a key Army installation.**
- **The post is divided into two areas, North and South. South Fort Polk, the major cantonment area, is traversed by two state highways, north/south LA 467and east/west LA 10.**
- **The post street network follows many of the original road alignments and, as a result, there are many curving streets and odd-shaped intersections.**
- **Several post streets are in poor condition and many traffic control devices need replacement or upgrading.**
- **Traffic flows throughout the day without serious congestion.**

Traffic Data

- **Sample traffic counts were taken at the intersection of Chaffee and Exchange Rds. During the morning peak hour, the predominate flow was from north to south and from west to south. During the lunch period, all approaches had relatively equal, moderate volumes. During the evening peak, all movements were heavy except for the light west to south right turn.**
- **For those intersections addressed in this study, Chaffee and Exchange Rds had 4 accidents during the past 6 months; Chaffee and Magazine Rds, no accidents; and Alabama/Mississippi/3rd St, 2 accidents.**

Recommendations

Intersection of Chaffee and Exchange Rds

- **Revise the signal timing to a 50 sec cycle, with Exchange Rd approaches getting 14 sec of green/3 sec of amber/33 sec of red; Chaffee Rd getting 29 sec of green (including NB leading left)/4 sec of amber/17 of red.**
  - The existing cycle of approximately 100 seconds is very inefficient and causes many vehicles to remain stopped long after the conflicting flows have cleared. The existing level of service is rated C to D.
  - Existing loop detectors appear to work sporadically or not at all and should be repaired. Once repaired, the timing should be adjusted.
  - With a new signal timing and repaired loop detectors, the level of service should rise to A to B.

Recommendations (cont)

- **Extend the left-turn storage lane on the northbound Chaffee Rd approach from 70 to 100 ft by repainting the intersection.**
  - This additional length is required to accommodate the heavy left turn of about 200 vehicles during the evening peak hour.

Vehicle encroaching on median

New lane alignment

Recommendations (cont)

- **By using a portion of the 10-ft shoulder on the southbound Chaffee Rd approach, provide a separate 60-ft long right-turn lane.**
  - Motorists occasionally drive on this shoulder to make right turns and have the potential of being hit by right-turning motorists who stay within the marked travel lane.
- **Install a YIELD sign for this right-turn movement.**

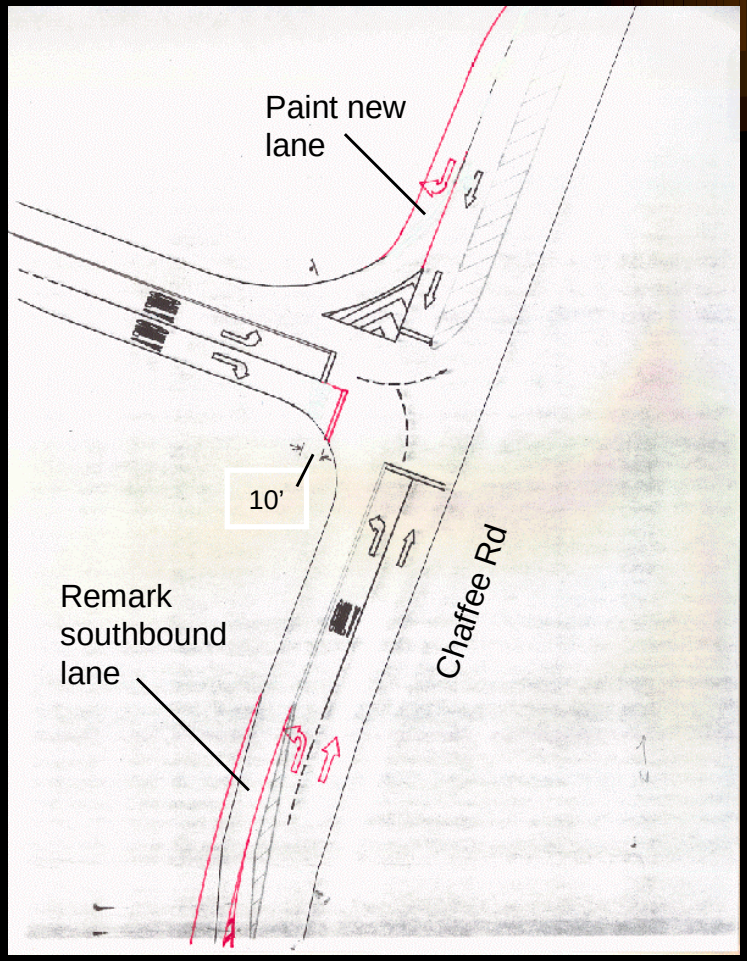
Vehicle encroaching on shoulder

New right-turn lane

Recommendations (cont)

- **Install black-on-white, rectangular NO DRIVING ON SHOULDER signs on the southbound and eastbound approaches approximately 150 feet prior to the intersection.**
  - This 24” x 30” regulatory sign is used throughout Louisiana.
- **Move the Stop line for the right-turn lane on eastbound Exchange Rd forward by 10 ft.**
  - This will give motorists in this lane a better view to the north, and place them closer to the intersection and thus allow them to clear it faster.

Recommendations (cont)



- Concept sketch for the intersection of Chaffee and Exchange Rds

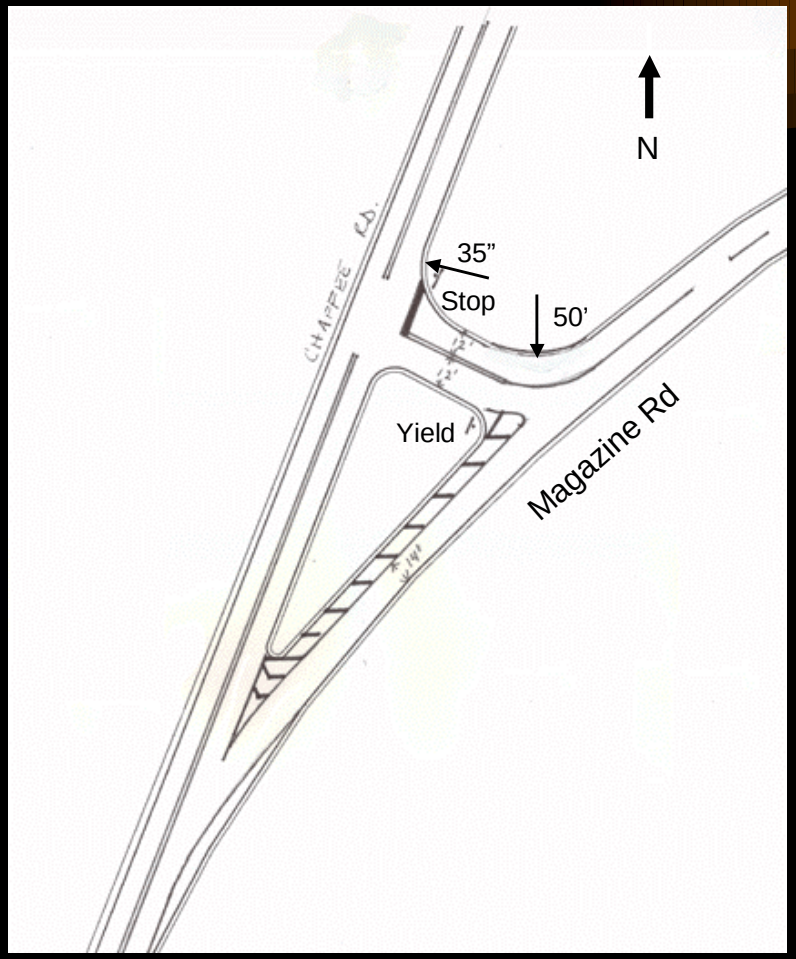
Recommendations (cont)

Intersection of Chaffee Ave and Magazine Rd

- **Modify this intersection so that it provides a single, right-angle Magazine Rd approach onto Chaffee Ave.**
  - This design provides a much better view of the Chaffee Ave north leg for Magazine Rd motorists turning south .
  - It essentially reduces the vehicle conflict zone to only one location.
  - It eliminates the existing confusion regarding right-of-way.

Existing Approaches

Recommendations (cont)



- Concept sketch for the intersection of Chaffee and Magazine Rds

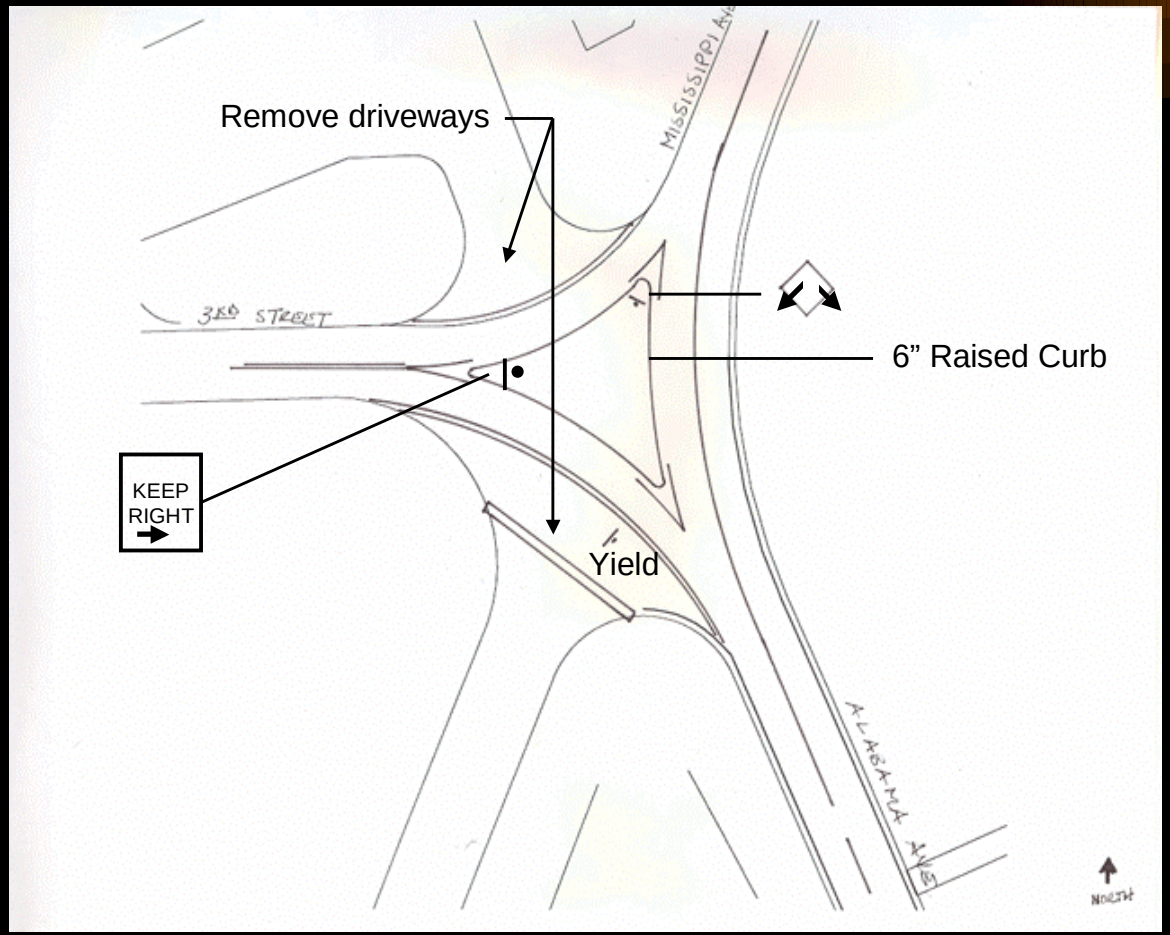
Recommendations (cont)

Intersection of Mississippi Ave, Alabama Ave, and 3rd St

- **Construct a raised, 6-in island to clearly define travel paths and reduce the open expanse of pavement.**
  - This design will reduce vehicle conflict points to only one, where 3rd St traffic merges with the outer lane of southbound Alabama Ave.
  - The confusing view for southbound Mississippi Ave motorists will be eliminated.
- **Close access to the parking area on old Mississippi Ave.**

Area recommended for raised channelization

Recommendations (cont)



- Concept sketch for the intersection of Mississippi and Alabama Aves with 3rd St

Recommendations (cont)

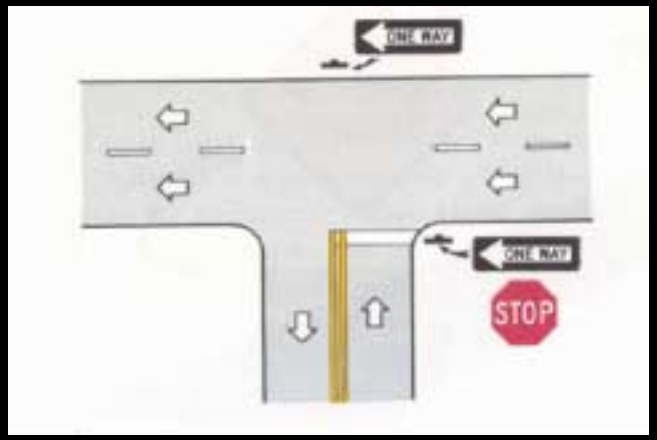
Service Station exit and Alabama Ave

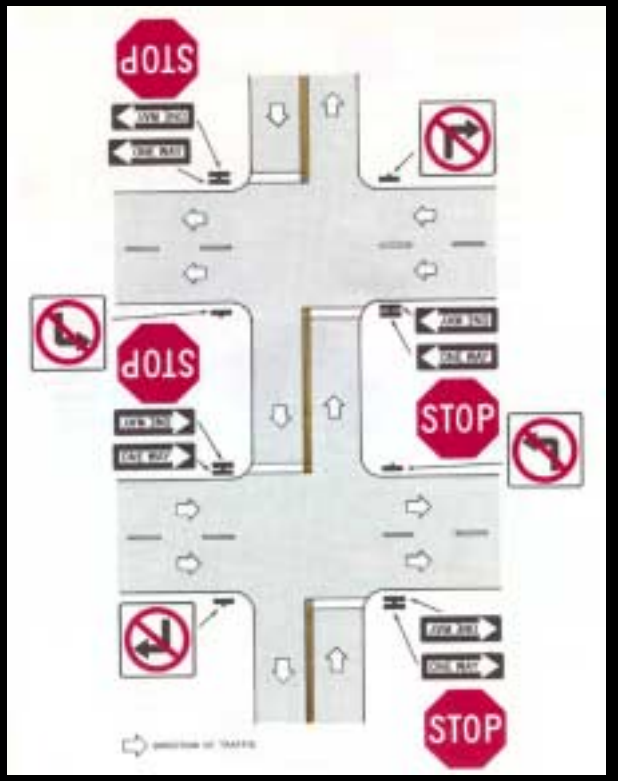
- **Provide one-way signs to clearly show that right turns are not allowed when exiting the service station onto one-way, southbound Alabama Ave.**
  - This problem is typical of the inadequate manner Alabama Ave, Georgia Ave, and other one-way streets are signed.

Note the lack of one-way signs and road markings, and poor condition of pavement.

Recommendations (cont)

- **Proper location of one-way and turn prohibition signs.**





Source: FHWA's *Manual on Uniform Traffic Control Devices*.

Recommendations (cont)

<u>One-way Alamaba and Georgia Aves</u>

- **Retain the current one-way operation. The benefits and disadvantages of keeping this one-way pair include:**
  - **Positives:** Vehicle and pedestrians conflict points are minimized.
  - Pedestrian vision of oncoming traffic is greater.
  - Intersectional delay is reduced by having fewer approaches.
  - Less than 12-ft wide lanes are more acceptable for one-way flows since there is no opposing traffic.
  - Progressive signal timing potential is increased.
  - Roadway capacity is greater versus a two-way operation.
  - **Negatives:** More circuitous travel will occur and more signing is required.

Recommendations (cont)

- **After conducting an engineering field survey and cost analysis, provide additional connectors between Alabama and Georgia Aves. The most likely candidates include:**
  - Extending New Jersey Ave to the west to connect with Alabama Ave.
  - Extending 9th St to the east and Pennsylvania Ave to the west, and eliminate the connector between them.
  - Extending Illinois Ave to the west.
  - Improving the connector on the east end on 22nd St by eliminating the parking spaces it now traverses.

Recommendations (cont)

Access Control Study

- **Should the post decide to obtain professional assistance in determining the minimum gates required to maintain a good level of service into, out of, and throughout a "closed" Ft Polk, post officials may do one of the following:**
  - Request TEA include Ft Polk in a contractor package including several other installations preparing to become closed posts; will cost perhaps $25,000. TEA would write scope of work and provide technical oversight of project conducted by Gannett Fleming, Inc. (Start: approx 6 months)
  - Request TEA conduct a minimum analysis at a cost of about $3,000; post personnel would collect traffic counts prior to the study. Study would result in a basic gate closure plan (85 percent solution) without benefit of detail technical analysis. (Start: perhaps late 2001 or early 2002)
  - Use TEA as a technical advisor on a as-needed basis, to attend key meetings, provide general guidance, evaluate proposals, etc. Cost of $1000 per trip. (Start: 4th Qtr 01, quarterly after that.)

Recommendations (cont)

Intersection of Alabama, Georgia, and Louisiana Aves

- **Provide a minimum of two traffic signal faces per approach.**
  - Post officials are commended for having upgraded three signalized intersections during the past two years based on recommendations made in the 1999 traffic engineering study by Gannett Fleming, Inc. However, work remains to be accomplished.
  - Using a single signal face violates national standards; therefore, this deficiency could subject post officials to legal action should a motorists claim that a burned out bulb or inadequate indication of a stop condition caused his/her accident.

General

- **Hire a civil engineer and assign the position collateral duties as the designated post traffic engineer.**

Summary

- **Should additional background information be desired or should questions arise related to design details, please contact Whit Mayes at 800.722.0727, 757. 599.1699, DSN 927-4848, or e-mail *mayesw@tea-emh1.army.mil*.**

5th ID (M)
Memorial Park